

REMARKS

In view of the following remarks, the Examiner is requested to allow Claims 1-24, the only claims pending and under examination in this application.

Claims 11 and 24 have been amended to include the steps of "determining a chemical array layout in which each of said features in said chemical array layout has a size that is chosen based on its biopolymeric ligand composition", and "fabricating said chemical array of biopolymeric ligands according to said chemical array layout." Support for these amendments can be found throughout the specification and claims as originally filed, for example at pages 13-14, paragraph [0065], and Claim 1. Accordingly, no new matter has been added.

In addition, Claim 24 has been amended to correct minor informalities and to indicate that the method is a method of fabricating a chemical array of biopolymeric ligands. Support for these amendments can be found throughout the specification and claims as originally filed, for example at page 1, paragraph [0005], and page 12-13, paragraph [0060]. Accordingly, no new matter has been added.

As no new matter has been added by way of these amendments, entry thereof by the Examiner is respectfully requested.

Claim Rejections – 35 U.S.C. § 112

Claims 11-24 were rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In light of the amendments to Claims 11 and 24 set forth above, the Applicants submit that this rejection has been adequately addressed. Thus, this rejection may be withdrawn.

Claim Rejections – 35 U.S.C. § 102

Claim 24 was rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Fujimori et al. (U.S. Patent No. 6,328,404).

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil of California*, 814 F.2d 628, 631; 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

An element of amended Claim 24 is a method of fabricating a chemical array of biopolymeric ligands.

Fujimori is deficient in that it fails to teach the fabrication of a chemical array of biopolymeric ligands. Fujimori fails to teach this element because Fujimori is directed to a printing apparatus for the printing of ink. As ink is not a biopolymeric ligand, Fujimori fails to teach all the elements of the rejected claims, and therefore, fails to anticipate the claimed invention. As such this rejection may be withdrawn.

Claims 11 and 23 were rejected under 35 U.S.C. § 102(a) as allegedly being anticipated by Hsieh et al. (*J. of Biomolecular Screening*, March 2004, 9: 85-94).

Claim 23 depends from Claim 11. An element of amended Claim 11 is determining a chemical array layout in which each of the features in the chemical array layout has a size that is chosen based on its biopolymeric ligand composition.

The Examiner asserts that Hsieh teaches this element because Hsieh discloses the following:

For piezo ejectors, fluid viscosity and waveform influence the droplet size more significantly than other parameters. With the DNA probe solution, we were able to demonstrate that drop size could be varied in a controlled way by changing the waveforms. Specifically, 3 variants of 1 common waveform produced droplets of 59-, 64-, and 73- μ m spherical diameters, which corresponds to 105, 134, and 206 pL of fluid delivered. Combining the features of small and controllable individual drop volumes with high firing frequency, the system allows a variable array feature size and fluid usage that does not sacrifice overall throughput.

See Hsieh, pg. 90, col. 1, ¶ 1.

As can be seen with reference to the above excerpt, contrary to the assertion of the Examiner, Hsieh does not teach the determination of a chemical array layout

wherein each of the features in the chemical array layout has a size that is chosen based on its biopolymeric ligand composition. Rather, all that Hsieh discloses is that the drop size can be varied in a controlled way by changing the waveforms. Simply controlling the drop size does not equate with determining an array layout wherein each of the features of the array has a size that is chosen based on its biopolymeric ligand composition. This element is simply not disclosed in Hsieh, and therefore, Hsieh fails to anticipate the claimed invention. As such, this rejection may be withdrawn.

Claims 11-18, 22 and 24 were rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by Hirota et al. (U.S. Patent No. 6,753,144).

An element of the rejected claims is determining a chemical array layout in which each of the features in the chemical array layout has a size that is chosen based on its biopolymeric ligand composition.

The Applicants submit that Hirota fails to disclose the element of determining a chemical array layout in which each of the features in the chemical array layout has a size that is chosen based on its biopolymeric ligand composition. At best, Hirota discloses the fabrication of an array with different feature sizes. However, nowhere does Hirota disclose determining a chemical array layout in which each feature in the chemical array layout has a size that is chosen based on its biopolymeric ligand composition, as claimed by the Applicants. Thus, Hirota fails to anticipate the claimed invention, and this rejection may be withdrawn.

Claim Rejections – 35 U.S.C. § 103

Claims 1-10 and 19-23 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Hirota et al. (U.S. Patent No. 6,753,144) in view of Blanchard (U.S. Patent No. 6,419,883).

In order to meet its burden in establishing a rejection under 35 U.S.C. § 103 the Office must first demonstrate that the combined prior art references teach or suggest all the claimed limitations. See *Pharmastem Therapeutics, Inc. v. Viacell*,

Inc., 491 F.3d 1342 (Fed. Cir. 2007) ("the burden falls on the patent challenger to show by clear and convincing evidence that a person of ordinary skill in the art would have had reason to attempt to make [every element of] the composition or device, or carry out the [entire] claimed process, and would have had a reasonable expectation of success in doing so," (citing *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1740 (2007))); and see *Omegaflex, Inc. v. Parker-Hannifin Corp.*, 2007 U.S. App. LEXIS 14308 (Fed. Cir. 2007) ("[t]he Supreme Court recently explained that 'a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art,'" (citing *KSR Int'l Co.* at 1741)); and see *Dystar Textilfarben GmbH v. C.H. Patrick Co.*, 464 F.3d 1356, 1360 (Fed. Cir. 2006) ("[once] all claim limitations are found in a number of prior art references, the factfinder must determine '[w]hat the prior art teaches, whether it teaches away from the claimed invention, and whether it motivates a combination of teachings from different references,'" (citing *In re Fulton*, 391 F.3d 1195, 1199-1200 (Fed. Cir. 2004))).

An element of the rejected claims is determining a chemical array layout in which each feature in said chemical array layout has a size that is chosen based on its biopolymeric ligand composition.

The Examiner acknowledges that Hirota is deficient in that it fails to teach or suggest layout determination. Thus, the Examiner relies upon Blanchard to remedy the deficiencies of Hirota.

The Applicants respectfully disagree and contend that a *prima facie* case of obviousness has not been established because the cited combination of Hirota and Blanchard fail to teach all the elements of the rejected claims. As set forth above, nowhere does Hirota disclose determining a chemical array layout in which each feature in the chemical array layout has a size that is chosen based on its biopolymeric ligand composition, as claimed by the Applicants.

In addition, the Applicants submit that Hirota does not suggest this element. Hirota does not suggest this element because, at best, Hirota merely discloses the

fabrication of an array with different feature sizes. Nowhere does Hirota suggest determining a chemical array layout in which each feature in the chemical array layout has a size that is chosen based on its biopolymeric ligand composition, as claimed by the Applicants.

Thus, Hirota does not disclose or suggest the above claimed elements.

Blanchard is directed to methods for dispensing microdroplets of a solution. According to the Examiner, Blanchard discloses determining a layout prior to array fabrication. However, similar to Hirota above, Blanchard does not disclose or suggest determining a chemical array layout in which each feature in the chemical array layout has a size that is chosen based on its biopolymeric ligand composition, as claimed by the Applicants.

In view of the above, a *prima facie* case of obviousness cannot be established because the cited combination of Hirota and Blanchard fails to teach all the elements of the rejected claims. Consequently, the Applicants respectfully request that this rejection be withdrawn.


CONCLUSION

In view of the amendments and remarks above, Applicant(s) respectfully submit(s) that all of the claims are in condition for allowance, which action is requested. If the Examiner finds that a telephone conference would expedite the prosecution of this application, please telephone Bret E. Field, (650) 327-3400.

The Commissioner is hereby authorized to charge any additional fees under 37 C.F.R. §§ 1.16 and 1.17 which may be required by this paper, or to credit any overpayment, to Deposit Account No. 50-1078.

Respectfully submitted,

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